

2014年2月20日

関東甲信越ブロック国立大学図書館協会セミナー

研究データマネジメント ～データサイエンス時代の大学図書館

筑波大学大学院図書館情報メディア研究科

博士後期課程

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本日の発表

1. データサイエンスの動向
2. なぜ図書館が支援するのか？
3. 研究データマネジメントとは？



1. データサイエンスの動向

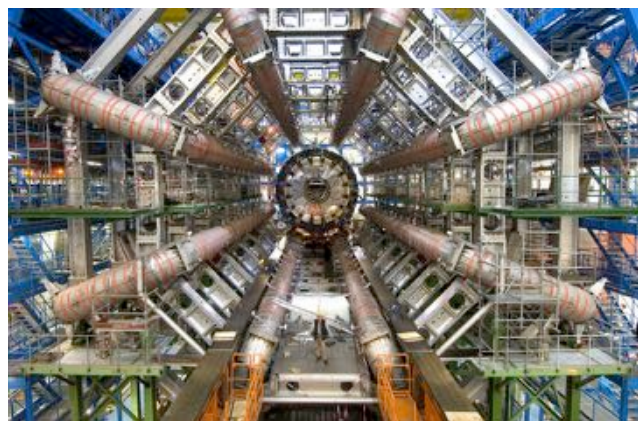
データサイエンスの動向

1. データ共有による効率化と信頼性の向上
2. データ共有の義務化
3. データの引用と評価

1-1. データ共有による研究の効率化



ヒトゲノムプロジェクト



アトラス実験（ヒッグス粒子の発見）



GEOSS（全球地球観測システム）



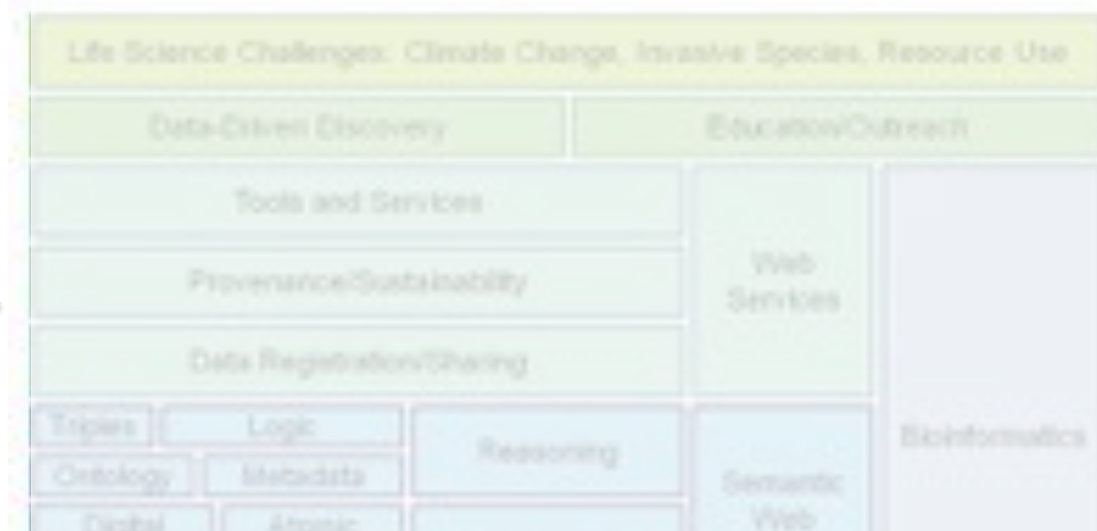
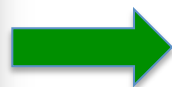
ヴァーチャル天文台

1-1. 共有のための環境や技術の向上



1985年

5 インチFD ≒ 1 MB



世界の研究データ

0.7 ZB (2009) → 35 ZB (2020)

※ 1 ZB = 10^{12} GB

Fienberg, S.E. et al. Sharing Research Data. National Academies Press. 1985, 234p.

“Technical Infrastructure needed for Big New Biology to fully emerge”
Thessen, A. E. et al. Data issues in the life sciences. ZooKeys. 150, p.15-51.

1-2. データ公開による信頼性の向上

nature news

医学生物学論文の70%以上が、再現できない!

NIH mulls rules for validating key results

MEREDITH WADMAN 2013年8月1日号 Vol. 500 (14-16)

研究結果の再現性の低さが、深刻な問題となっている。
再現性のない論文を根拠に費用のかさむ臨床試験を実施することはできないので、多くの研究資金を提供している NIH は、
独立の研究機関に再現実証実験を委託することさえ検討し始めた。

生物学の研究分野で、何度も繰り返されている公然たる事実がある。それは、実験結果を再現できない重要な研究論文が、コンスタントに大量に発表されているということだ。
2011年の製薬会社バイエル社(ドイツ・レーパーカーゼン)の内閣報告によ

仕組みを考えている。このようにNIHが上からの改革を進めようとする一方で、ある企業は、下からの改革に乗り出そうとしている。自分の研究結果を独立の研究機関が実証することを希望するかどうか、科学者たちにじかに聞き始めたのである。

Wadman, M. 医学生物学論文の70%以上が、再現できない! 三枝小夜子訳. Natureダイジェスト. 2013, 10(11), p. 28-29.

Science AAAS.ORG | FEEDBACK | HELP | LIBRARIANS All Science Journals Enter Search Text

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Science The World's Leading Journal of Original Scientific Research, Global News, and Commentary.

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Home > Science Magazine > 4 October 2013 > Bohannon, 342 (6154): 60-65

Article Views Science 4 October 2013: Vol. 342 no. 6154 pp. 60-65 DOI: 10.1126/science.342.6154.60

Summary NEWS

Who's Afraid of Peer Review?

John Bohannon

A spoof paper concocted by Science reveals little or no scrutiny at many open-access journals.

On 4 July, good news arrived in the inbox of Ocorrafoo Cobange, a biologist at the Wassee Institute of Medicine in Asmara. It was the official letter of acceptance for a paper he had submitted 2 months earlier to the *Journal of Natural Pharmaceuticals*, describing the anticancer properties of a chemical that Cobange had extracted from a lichen.

In fact, it should have been promptly rejected. Any reviewer with more than a high-school knowledge of chemistry and the ability to understand a basic data plot should have spotted the paper's short-comings immediately. Its experiments are so hopelessly flawed that the results are meaningless.

I know because I wrote the paper. Ocorrafoo Cobange does not exist, nor does the Wassee Institute of Medicine. Over the past 10 months, I have submitted 304 versions of the wonder drug paper to open-access journals. More than half of the journals accepted the paper, failing to notice its fatal flaws. Beyond that headline result, the data from this sting operation reveal the contours of an emerging Wild West in academic publishing.

From humble and idealistic beginnings a decade ago, open-access scientific journals have mushroomed into a global industry, driven by author publication fees rather than traditional subscriptions. Most of the players are murky. The identity and location of the journals' editors, as well as the financial workings of their publishers, are often purposefully obscured. But Science's investigation casts a powerful light. Internet Protocol (IP) address tracer within the eye header of

COMMUNICATION IN SCIENCE

PRESSURES AND PREDATORS

Bohannon, J. Who's afraid of peer review? Science. 2013, 342(6154), p. 60-65. DOI: 10.1126/science.342.6154.60

「誰も信じてくれなかったことが、何よりも大変だった」。従来の常識を打ち破る革新的な万能細胞「STAP細胞」を開発した理化学研究所発生・再生科学総合研究センター（神戸市）の小保方（おぼかた）晴子・研究ユニットリーダー…（30）は、成功までの道のりをこう振り返った。

STAP細胞が打ち破った常識は「動物細胞でも外的刺激で初期化した」「あまりに簡単すぎる技術で実現」など数多い。学位を取得して2年目の若き女性研究者が挙げた成果というのも、その一つだ。



新型の万能細胞「STAP細胞」の作製に成功した理化学研究所の小保方晴子研究ユニットリーダー＝神戸市（伊藤壽一郎撮影）

これほど常識破りだったため、昨年春、世界的に権威ある英科学誌ネイチャーに投稿した際は、「過去何百年の生物細胞学の歴史を愚弄していると酷評され、掲載を却下された」。

だが、「STAP細胞は必ず人の役に立つ技術だ」との信念を貫いて膨大なデータを集め、今回は掲載にこぎつけた。「何度もやめようと思ったけれど、あと1日だけ頑張ろうと続けてきて、いつの間にか今日に至った」と話す。



膨大なデータ

msn 産経ニュース 2014年1月29日

nature International weekly journal of science

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Current issue | Articles | Article

NATURE | ARTICLE

English version

細胞：外界刺激が誘導する体細胞から多能性細胞への運命転換

Haruko Obokata, Teruhiko Wakayama, Yoshiki Sasai, Koji Kojima, Martin P. Vacanti, Hitoshi Niwa, Masayuki Yamato & Charles A. Vacanti

Affiliations | Contributions | Corresponding authors

Nature 505, 641–647 (30 January 2014) | doi:10.1038/nature12968
 Received 10 March 2013 | Accepted 20 December 2013 | Published online 29 January 2014

Full text | PDF | Citation | Reprints | Rights & permissions | Article metrics

Abstract

Abstract · References · Author information · Extended data figures and tables · Supplementary information

本研究では、刺激誘導型の多能性獲得 (STAP; stimulus-triggered acquisition of pluripotency) と名付けた、細胞の独特な再プログラム化現象について報告する。STAPは核移植や転写因子の導入を必要としない。STAPでは、一過的な低pHストレスのような外界からの強い刺激により、哺乳類の体細胞が再プログラム化され、その結果として多能性細胞が作り出される。我々は、単純したリンパ球に由来するSTAP細胞をリアルタイムで画像化することや、遺伝子再構成の解析を行うことで、運命拘束された体細胞が、選択ではなく再プログラム化によりSTAP細胞を作り出すことを明らかにした。STAP細胞では、多能性マーカー遺伝子の調節領域においてDNAメチル化の大幅な減少が見られた。STAP細胞を胚盤胞へ注入すると、効率的にキメラ胚形成に寄与し、生殖細胞系列伝達を介して子孫を作り出した。また、STAP細胞からの整調に増殖可能な多能性幹細胞の作製についても明らかにした。従って、我々の発見は、エピジェネティックに決定される哺乳類細胞の細胞運命が、環境からの強い入力により、状況依存的に明らかに転換できることを示している。

Extended data figures and table

Abstract · References · Author information · Extended data figures and tables · Supplementary information

Extended Data Figures

1. Extended Data Figure 1: Conversion of haematopoietic cells into Oct4-GFP⁺ cells by a low-pH exposure. (292 KB)

a, Optimization of pH conditions for Oct4-GFP induction. Five days after CD45-positive cells were exposed to acidic solution treatment at different pH, Oct4-GFP expression was analysed by FACS (n = 3, average ± s.d.). b, Gating strategy for Oct4-GFP⁺ cell sorting. Top: representative results 7 days after the stress treatment. Bottom: non-treated control. P3 populations were sorted and counted as Oct4-GFP⁺ cells for all experiments. c, Controls for FACS analysis. In Oct4-GFP⁺ cell analysis, the grey and white histograms indicate the percentage of CD45⁺ cells and CD34⁺ cells, respectively. d, Average number of cells per well after 7 days in ES culture medium. e, Signalling components added to the medium during STAP cell conversion. f, Average number of cells per well after 7 days in ES culture medium. g, RT-PCR analysis of recombined DNA in ES cells.

Extended Data Figure 2: Phenotypic change during STAP cell conversion.

From
 Stimulus-triggered fate conversion of somatic cells into pluripotency
 Haruko Obokata, Teruhiko Wakayama, Yoshiki Sasai, Koji Kojima, Martin P. Vacanti, Hitoshi Niwa, Masayuki Yamato & Charles A. Vacanti
 Nature 505, 641–647 (30 January 2014) | doi:10.1038/nature12968

小保方晴子ほか. 細胞：外界刺激が誘導する体細胞から多能性細胞への運命転換.
 Nature. 2014, 505, p.641-647. doi:10.1038/nature12968

2-1. 政府組織による研究データ公開指示



"Principles and Guidelines for Access to Research Data from Public Funding" 2007



“Increasing Access to the Results of Federally Funded Scientific Research” 2013

2-2. 助成機関によるデータ公開の義務化

助成金申請時に『研究データマネジメント計画』
提出を義務付ける



NSF（米国国立科学財団）2011/1/18
“Data Management Plan Requirements”



ARC（豪州研究委員会）2014/1/7
“A11.5 Publication and Dissemination of
Research Outputs ”

3-1. DOIの付与：検索・引用



DataCite

- データにDOI（永続識別子）付与
- メタデータスキーマの提供

Data Citation Index (2012.11-)

- 自然科学（80%）
- 社会科学（18%）
- 人文・芸術（2%）

3-2. データを論文と同様に評価

National Science Foundation
WHERE DISCOVERIES BEGIN

QUICK LINKS

FUNDING AWARDS DISCOVERIES NEWS PUBLICATIONS STATISTICS ABOUT NSF FASTLANE

Grant Proposal Guide

NSF 13-1 January 2013
GPG Summary of Changes

Significant Changes to Implement the Recommendations of the National Science Board's Report entitled, "National Science Foundation's Merit Review Criteria: Review and Revisions"

Chapter II, Introduction, has been supplemented with information regarding the Foundation's core strategies from the NSF 2011-2016 Strategic Plan. Similar language regarding integration of research and education and integrating diversity previously appeared in Chapter III.A. The language was moved and updated to align with NSF's current strategic plan. The purpose of this change is to help eliminate internal and external confusion regarding whether these two core strategies are additional review criteria, while at the same time, reiterating their importance.

Chapter II.C.1.a, Proposal Certifications, has been updated to include a new Organizational Support Certification to address Section 526 of the America COMPETES Reauthorization Act (ACRA) of 2010.

Chapter II.C.2.b, Project Summary, has been revised to omit language regarding the inclusion of separate headings to address the two merit review criteria. In lieu of this approach, FastLane has been modified to display three separate text boxes in which proposers must provide an Overview and address the "Intellectual Merit" and "Broader Impacts" of the proposed activity. Because FastLane will enable the criteria to be separately addressed (still within one page), proposers will no longer need to include separate headings. Proposals that do not separately address the overview and both merit review criteria within the one-page Project Summary will not be accepted or will be returned without review.

COMMENT

The reuse factor

The reference is not dead – it is exploding to encompass the full spectrum of research outputs from lines of code to video frames, explains **Mark Hahnel**.

Researchers are still struggling to find, manipulate and cite research outputs other than published papers. Data-management plans for research – detailing what data will be created and how, and outlining plans for data sharing and preservation – are a core requisite of all grant applications for a long list of US and UK funding agencies. These include the US National Science Foundation, the US National Institutes of Health, NASA, the UK Biotechnology and Biological Sciences Research Council, the UK Medical Research Council and the Wellcome Trust. Funders require grantees to make all their products available in a citable, sharable and discoverable man-

their research to have quantifiable impact. To this end, the Research Data Alliance (RDA) was established in August 2012 by a steering group of funding agencies from the United States, Europe and Australia. The RDA aims to accelerate and facilitate research data sharing and exchange across multiple disciplines that have complicated funder mandates and a need to cite various unconventional research outputs. An RDA working group plans to provide prototypes and examples. For instance, individual cells of a spreadsheet or a few frames of a video can be cited in a way that does not dilute a paper's total number of citations. Early adopters of open-data science are already seeing the benefits. Computer scientist

NSF (米国国立科学財団)

2013年1月から業績としてデータを記載可能に
“Publication” → “Products”

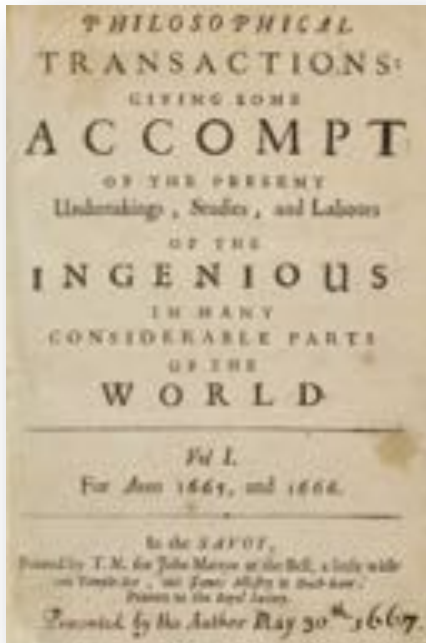
“GPG Summary of Changes”. NSF 13-1 January 2013

リユースファクター (提案)

データやコードの引用によるインパクトを測定

Hahnel, M. The reuse factor. Nature. 16 October 2013, 502(7471), p.298. doi:10.1038/502298a

3-3. 論文 → データ専門誌



The Royal Society.
Philosophical Transactions.
<http://rstl.royalsocietypublishing.org>

Nature Publishing Group
2014年5月 OA誌 "Scientific Data" 刊行
http://www.nature.com/press_releases/scientificdata.html

データサイエンスの動向

1. データ共有による**効率化**と**信頼性**の向上
2. データ共有の**義務化**
3. データの**引用**、**業績化**

日本は？

千葉大「不正は確認できず」 8%のデータに差 高血圧薬論文不正

製薬大手ノバルティスの高血圧治療薬ディオバンの効果を調べた臨床研究の論文不正問題で、千葉大は17日、8%のデータに食い違いが判明したものの、「意図的なデータ操作は見いだせなかった」と中間報告を発表した。第三者機関に解析を依頼、その結果をもとに最終的な結論をまとめる。



これで問題とされた5大学の調査報告がそろった。千葉大と名古屋大は不正は確認されず、京都府立医科大、東京慈恵会医科大、滋賀医科大では不正や不適切なデータ操作があったとされている。

千葉大の調査は、同大付属病院の高血圧の患者108人の統計解析に使ったデータとカルテを比べた。検査データで5~8%、血圧値では全測定値1512件のうち65件(4.3%)の食い違いがあった。大学側は、この食い違いが意図的か、単純ミスかは、現時点で判断できないという。

研究は、小室一成元教授(現東大教授)らが高血圧患者1021人を対象に実施し

UMIN 症例データレポジトリ(UMIN-ICDR) Individual Case Data Repository

CTR in English | CTR in Japanese | ICDR in English | ICDR in Japanese
症例データレポジトリの利用 | ICDR 試用系 | お問い合わせ | ICDR FAQ

症例データレポジトリ サービス
UMIN-ICDR
(アイ・シー・ディー・アール)

臨床研究不正防止のために、すべての研究者が活用できる症例データレポジトリを提供します。
データのダウンロードは、研究者側が指定した人 (UMIN ID) のみに限定され、一般公開されません。

症例データレポジトリを利用するには、まずUMIN臨床試験登録システムに臨床試験を登録していただく必要があります。

概要

症例データレポジトリシステムは、UMIN臨床試験登録システムの機能追加の形態で実装されています。このシステムは、研究者が自身の実施した臨床研究症例の匿名化したオリジナルのデータセットを、研究者自身の同意のもとにUMINサーバに保管し、UMINがその内容を第三者に担保するものです。これにより、他の研究者が必要に応じて症例データの査察や、統計解析のやり直しを行うことができるようになります。下記が可能になります。

- 臨床データの採集・変更のチェック
- 研究者(研究資金提供者も含む)に、都合の悪い統計解析結果の隠蔽の防止

特徴

- 臨床研究不正防止のために、すべての研究者が活用できる症例データレポジトリを提供します。(UMIN ID必須)
- バックアップやセキュリティ体制が整っているUMINを利用する為、将来に向けてデータが散逸することがなく、長期保存が可能です。
- データのダウンロードは、誰でもできるわけではなく、研究者側が指定した人(UMIN ID)のみに限定されます。一般公開されません。

研究者への注意点

- 個人情報(カルテ番号含む)は載せられませんので、匿名化していただく必要があります。
- 匿名化の方法は研究者に委ねられます。
- UMIN臨床試験登録システムに登録済み(UMIN試験ID発行済み)の臨床試験で、症例データレポジトリシステムをご利用可能です。
- データを更新した場合は、全ての履歴を記録します。

千葉大「不正は確認できず」8%のデータに差
高血圧薬論文不正. 朝日新聞. 2013年12月18日

症例データレポジトリ UMIN-ICDR
東京大学附属病院 2013年11月~

日本は？

補助金申請時のデータ協力依頼

事業や補助金	掲載開始年
文部科学省委託事業	2008年度～
JST戦略的創造研究推進事業 さきがけ、CREST	2011年度～
厚生労働省 科学研究費補助金	2011年度～
科学研究費助成事業（特別推 進、基盤、挑戦、若手）	2012年度～
JST戦略的創造研究推進 事業（ALCA）	2013年度～

高祖歩美. 生命科学分野におけるデータ共有の現状と課題.
情報管理. 2013, 56(5), p.296より作成

公的研究費の適正な管理

The screenshot shows the official website of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The page title is "公的研究費の適正な管理に関する有識者会議" (Expert Meeting on the Appropriate Management of Public Research Funds). The page includes a navigation menu with "意見・報道・お知らせ" and "政策・審議会". The main content area features a "概要" (Summary) section with two bullet points: "公的研究費の適正な管理に関する有識者会議の運営について" and "公的研究費の適正な管理に関する有識者会議について". Below this is a section for "最新の議事要旨・議事録・配付資料" (Latest Meeting Summary, Minutes, and Materials), with the 11th meeting held on January 22, 2024 (Wednesday) from 14:00 to 16:00.

公的研究費の適正な管理に関する有識者会議
http://www.mext.go.jp/b_menu/shingi/chousa/shinkou/024/



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2. なぜ図書館が支援するのか？

実際の公開状況：質問紙調査 (2011)

米国の研究者 1,329名

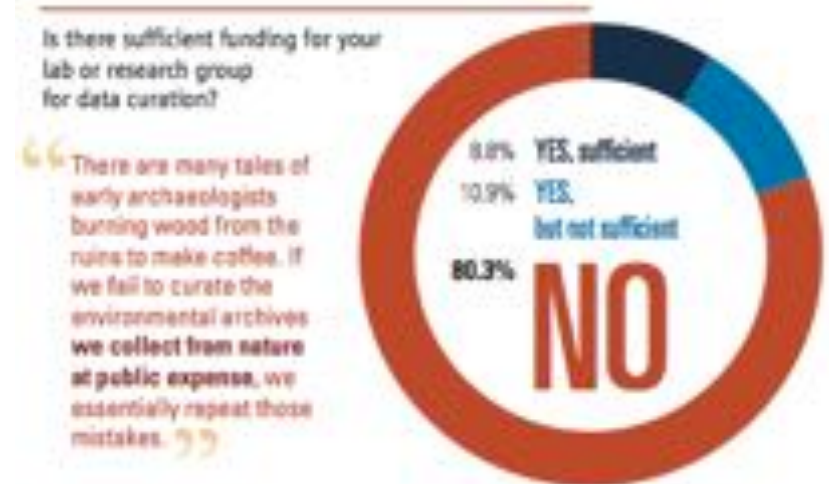
自分のデータは他の研究者が容易にアクセスできる (36%)



Monastersky, Richard. 再起動する大学図書館. Nature. 2013, 495(7442), p. 430-432.
Tenopir, C. et al. Data sharing by scientists. PLoS ONE. e21101

Science 査読者 1,700名

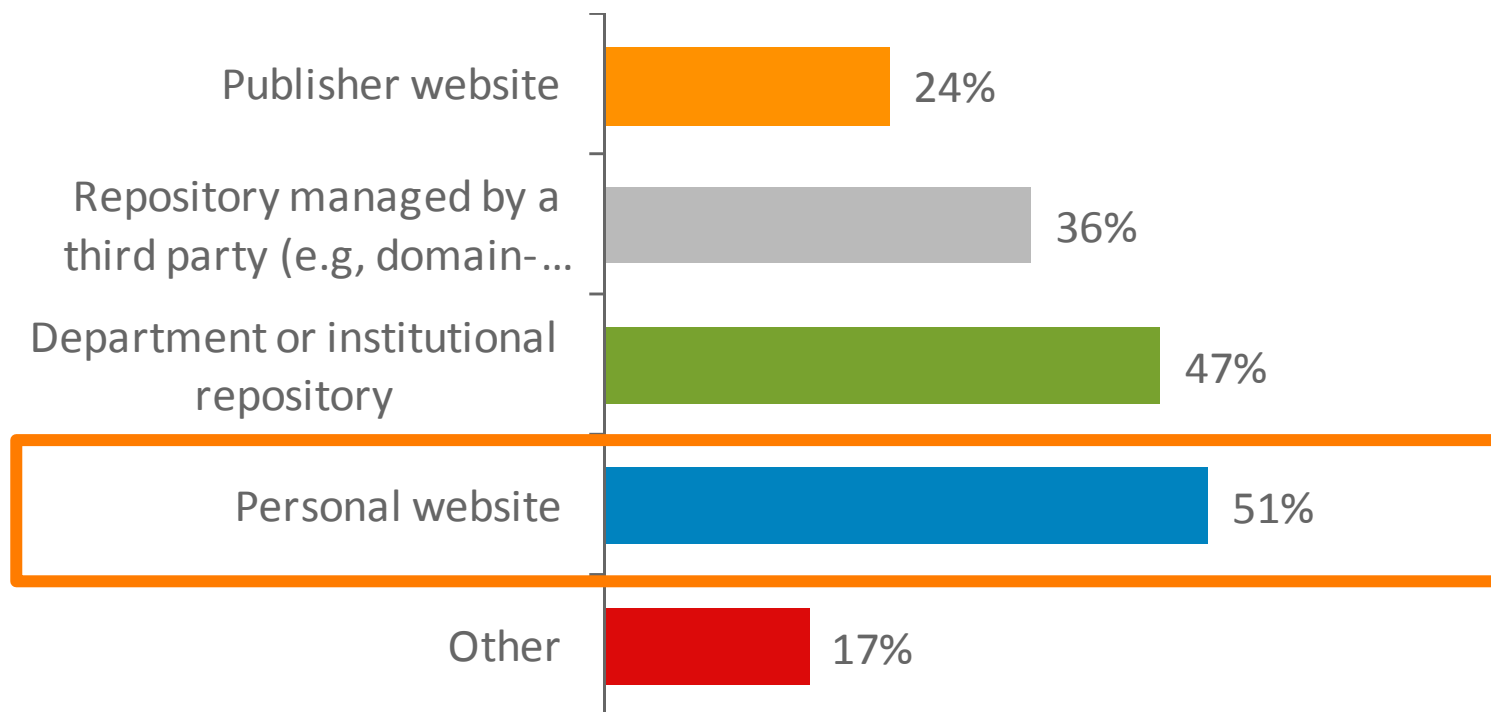
データキュレーションのための十分な資金がない (80.3%)



Challenges and opportunities. Science. 2011, Vol. 331, No. 11, p. 692-693.

研究データの保存先

DEPOSITION OF DATA BY RESEARCHERS



Robinson, Nigel. Discovery, Access, and Citation of Published Research Data. 2013.

大学図書館への期待

再起動する大学図書館

Nature 495, 430-432 (2013年3月28日号) | doi:10.1038/495430a

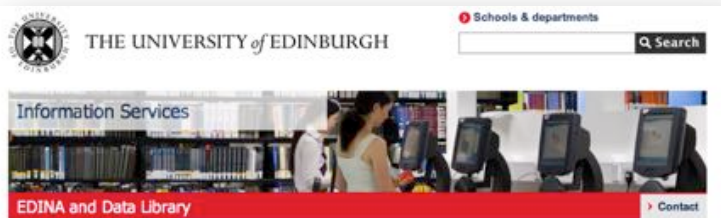
科学論文出版界がデータのオープンアクセス化に向かって動いている今、世界中の大学図書館と研究者が、その流れに遅れまいと方法を模索している。

Richard Monastersky



Monastersky, Richard. 再起動する大学図書館. 三枝小夜子訳. Nature. 2013, 495(7442), p. 430-432.

研究データ共有のための支援活動



大学図書館

- 研究データマネジメント(RDM)
- データキュレーション



Digital Curation Centre (英)

- JISCの助成により2004年に開始
- 研究機関, 大学図書館のRDM支援



Research Data Sharing
without barriers

RESEARCH DATA ALLIANCE

研究データ同盟

- “障壁なきデータ共有”
- 欧州委員会+米国政府+豪州政府が支援



DigCCurr

- ノースカロライナ大学チャペルヒル校
- 図書館員のための研修プログラム



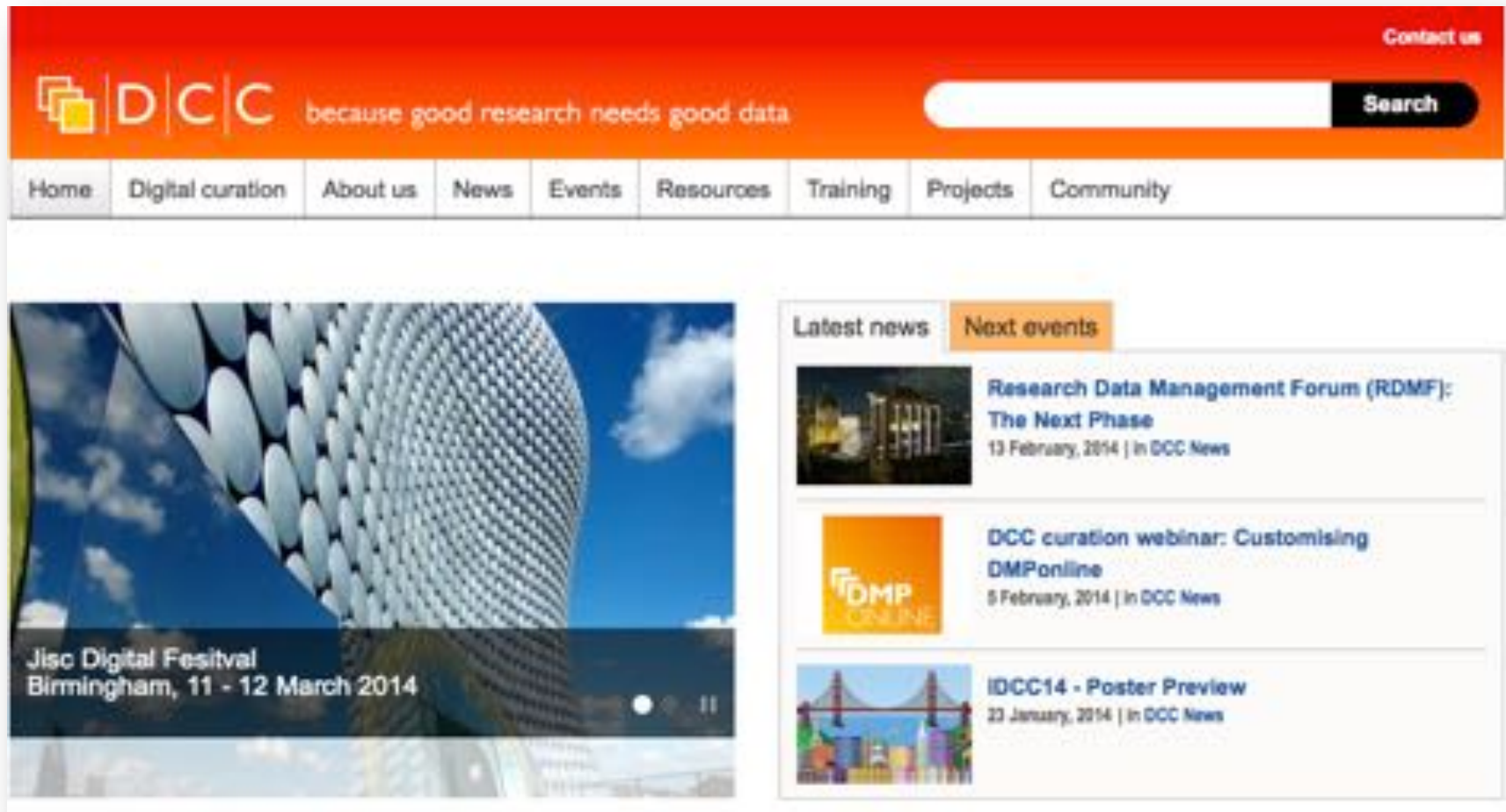
3. 研究データマネジメントとは？

英国インタビュー調査（2013年8月）

1. DCC（Digital Curation Centre）
2. エディンバラ大学
3. グラスゴー大学




DCC: Digital Curation Centre



The screenshot shows the DCC website homepage with a red header. The header contains the DCC logo (three overlapping squares) and the tagline "because good research needs good data." to the left of a search bar with a "Search" button. A "Contact us" link is in the top right corner. Below the header is a navigation menu with links for Home, Digital curation, About us, News, Events, Resources, Training, Projects, and Community. The main content area features a large video player on the left showing a modern building with a curved facade, with the text "Jisc Digital Festival Birmingham, 11 - 12 March 2014" overlaid. On the right, there are two columns of content: "Latest news" and "Next events". The "Next events" column lists three items: "Research Data Management Forum (RDMF): The Next Phase" (13 February, 2014), "DCC curation webinar: Customising DMPonline" (5 February, 2014), and "IDCC14 - Poster Preview" (23 January, 2014).


Contact us


 | D | C | C because good research needs good data. **Search**


Home Digital curation About us News Events Resources Training Projects Community

Jisc Digital Festival
Birmingham, 11 - 12 March 2014

Latest news **Next events**

 **Research Data Management Forum (RDMF):
The Next Phase**
13 February, 2014 | In DCC News

 **DCC curation webinar: Customising
DMPonline**
5 February, 2014 | In DCC News

 **IDCC14 - Poster Preview**
23 January, 2014 | In DCC News

DCCインタビュー

Kevin Ashley氏 (Director)

Jonathan Rans氏

Angus Whyte博士



インタビュー調査

エディンバラ大学

国立大学（1583年設立）

人文・社会学部，理工学部，
医学・獣医学部



2014/2/20

グラスゴー大学

国立大学（1451年設立）

人文学部，生命科学学部，
理工学部，医学・獣医学部



研究データマネジメント

27

インタビュー

エディンバラ大学

Stuart Lewis氏
Head of Digital Library



グラスゴー大学

Joy Davidson氏
DCC, 4C Project



研究データマネジメントの3要素



1. ポリシーとサービス実施計画

2. データキュレーション

3. 研究者のトレーニングと支援

“How to Develop Research Data Management Services – a guide for HEIs” DCC.
<http://www.dcc.ac.uk/resources/how-guides/how-develop-rdm-services>

1. ポリシーとサービス実施計画



1. ポリシーとサービス実施計画

2. データキュレーション

3. 研究者のトレーニングと支援

1. ポリシーとサービス実施計画

Research Data Management Policy

This policy for managing research data was approved by the University Court on 16 May, 2011.

The University adopts the following policy on Research Data Management. It is acknowledged that this is an aspirational policy, and that implementation will take some years.

1. Research data will be managed to the highest standards throughout the research data lifecycle as part of the University's commitment to research excellence.
2. Responsibility for research data management through a sound research data management plan during any research project or programme lies primarily with Principal Investigators (PIs).
3. All new research proposals [from date of adoption] must include research data management plans or protocols that explicitly address data capture, management, integrity, confidentiality, retention, sharing and publication.
4. The University will provide training, support, advice and where appropriate guidelines and templates for the research data management and research data management plans.
5. The University will provide mechanisms and services for storage, backup, registration, deposit and retention of research data assets in support of current and future access, during and after completion of research projects.
6. Any data which is retained elsewhere, for example in an international data service or domain repository should be registered with the University.
7. Research data management plans must ensure that research data are available for access and re-use where appropriate and under appropriate safeguards.
8. The legitimate interests of the subjects of research data must be protected.
9. Research data of future historical interest, and all research data that represent records of the University, including data that substantiate research findings, will be offered and assessed for deposit and retention in an appropriate national or international data service or domain repository, or a University repository.
10. Exclusive rights to reuse or publish research data should not be handed over to commercial publishers or agents without retaining the rights to make the data openly available for re-use, unless this is a condition of funding.

“Policies and Regulations”. Information Services, University of Edinburgh.

<http://www.ed.ac.uk/schools-departments/information-services/about/policies-and-regulations/research-data-policy>

1. ポリシーとサービス実施計画



4部門のロードマップ

IS RDM Roadmap 2012-2014 University of Edinburgh

Data Management Planning
Support and services for planning activities that are typically performed before research data is collected or created
Addresses RDM policy clauses 3, 4
Responsible: DCC and RDM Action Group

Objective	Outcomes	Actions	Deliverables	Target date
1. Tailored OMP assistance for Principal Investigators (PIs) submitting research proposals	Better alignment between IS, ERI and Schools	Analyse recent OMPs in research proposals	Set of successful examples of submitted OMPs gathered from ERI and Schools to provide a knowledge base	Phase 0
	PIs have access to appropriate, accurate information about IS RDM services for their grant proposals	Trial fast turnaround advisory service with nominated PIs	OMP 'response team' established within IS if deemed required	Phase 2
2. Customise OMPonline for optimal UoE use	Clear online service provision for those PIs needing a data management plan	Evaluate OMPonline and analyse user requirements	University branded OMPonline tool	Phase 1
		Refine tool or fully adopt the DCC version, adding UoE specific questions and guidance	Boilerplate text about IS services for use in OMPs	Phase 2

“Research Data Management [RDM] Roadmap August 2012 - May 2015”. Information Services RDM Policy Implementation Committee, University of Edinburgh. http://www.ed.ac.uk/polopoly_fs/1.116873!/fileManager/UoE-RDM-Roadmap-140106.pdf

1. ポリシーとサービス実施計画

The screenshot shows the DCC website with a navigation menu and a search bar. The main content area is titled 'UK Institutional data policies'. It includes introductory text about the importance of formal policy for research data management and a table listing various institutional policies.

Institution	Policy name	Date released
University of Edinburgh	Research Data Management Policy	16 May 2011
University of Northampton	Research Data Policy	June 2011
University of Hertfordshire	Data Management Policy (see s.7 on research data and the appendix 'Guide to RDM')	1 Sept 2011
University of Warwick	Research Data Management Policy	7 Nov 2011
Glyndwr University	Policy on the Management of and Access to Research Data	20 December 2011
University of Southampton	Research Data Management Policy	February 2012
University of East London	Research Data Management Policy for UEL	15 March 2012

The screenshot shows the DataRes website with a navigation menu. The main content area is titled 'University Data Management Policies' and contains a table listing various university policies.

Institution	Policy URL
Florida State University	http://fsu.edu/Computing/Mainframe-NWRDC-Support-Services/Data-Manag...
Indiana University	http://datamgmt.iu.edu/policies.shtml
Johns Hopkins University	http://jhuresearch.jhu.edu/Data_Management_Policy.pdf
New York University	http://www.nyu.edu/content/dam/nyu/research/documents/OSP/PolicyonResear...
Ohio State University	http://orc.osu.edu/files/2011/01/ResearchDataPolicy.pdf
Purdue University	http://www.education.purdue.edu/dean/docs/DMWG_Final_Report.pdf
Stanford University	http://rph.stanford.edu/2-10.html
Tulane University	http://tulane.edu/savpr/ora/upload/NSF-Data-Management-Plan.pdf
University of Alaska Fairbanks Campus	http://www.uaf.edu/or/responsible-conduct/data-management/
University of Med/Dent of New Jersey	http://www.umdnj.edu/resrweb/documents/Guidelines_for_Conduct_Of_Research_and_Publications.pdf
University of Michigan Ann Arbor	http://spg.umich.edu/policy/601.12
University of New Hampshire	http://www.unh.edu/olpm/UNH-VIR/Res/C.htm
University of Notre Dame	http://or.nd.edu/policies/data-retention-and-access/
University of Pittsburgh	http://www.provost.pitt.edu/documents/RDM_Guidelines.pdf
University of Rochester	http://www.rochester.edu/ORPA/policies/eterit.pdf
University of Tennessee Knoxville	http://research.uk.edu/forms_docs/policy_research-data.pdf
University of Vermont & State Agricultural College	http://www.uvm.edu/spa/7Page-dataacquisition.html
University of Virginia Main Campus	https://policy.itc.virginia.edu/policy/policydisplay?id=1627RES-002%27
University of Washington	http://www.washington.edu/uwllt/m/dmo/docs/UWDataManagementPolicyV19.pdf
University of Wisconsin-Madison	http://www.grad.wisc.edu/research/policy/rpac/documents/PolicyDataStew...

"UK Institutional data policies"
Digital Curation Centre

"University Data Management Policies"
DataRes (米国)

2. データキュレーション



1. ポリシーとサービス実施計画

2. データキュレーション

3. 研究者のトレーニングと支援

2. データキュレーション



- 1) データマネジメント計画
- 2) データの整備
- 3) データの選択
- 4) リポジトリへの登録
- 5) データ目録

2-(1) データマネジメント計画

n.b. the research funder links in the table take you to further details of each funder's policy

● Full Coverage ● Partial Coverage ○ No Coverage

Research Funders	Policy Coverage			Policy Stipulations				Support Provided			
	Published outputs	Data	Time limits	Data plan	Access/sharing	Long-term curation	Monitoring	Guidance	Repository	Data centre	Costs
AHRC	●	●	●	●	●	○	○	●	○	○	○
BBSRC	●	●	●	●	●	●	●	●	●	○	●
CRUK	●	●	●	●	●	●	●	○	●	○	○
EPSRC	●	●	●	○	●	●	●	○	○	○	●
ESRC	●	●	●	●	●	●	●	●	●	○	○
MRC	●	●	●	●	●	●	○	○	●	○	○
NERC	●	●	●	●	●	●	●	●	●	○	○
STFC	●	●	●	●	●	●	●	○	●	○	○
Wellcome Trust	●	●	●	●	●	●	●	●	●	○	○

DCC Checklist for a Data Management Plan Donnelly and Jones

3	3.2.2	If you answered Yes to DCC 3.2.1, Who owns the copyright and other Intellectual Property?	Text	Yes	If for multi-partner projects, this may be worth covering in a consortium agreement. Ideally, this should address the risk of movement of staff between institutions mid-project.
3	3.2.3	If you answered Yes to DCC 3.2.1, How will the dataset be licensed?	Text	Yes	Any restrictions on use should be justified, and a timeframe for data release outlined to assure the funder of wider public benefit where possible. For example will there be: delays in releasing data while you seek a patent? Planned embargo periods / right of first use to secure publications? Prevention of data sharing due to terms of commercial partnership agreements? Guidance: - DCC Legal Watch Paper on Creative Commons (http://www.dcc.ac.uk/resources/briefing-papers/legal-watch-papers/creative-commons-licensing) - DCC Legal Watch Paper on Science Commons (http://www.dcc.ac.uk/resources/briefing-papers/legal-watch-papers/science-commons)
3	3.2.4	For multi-partner projects, what is the dispute resolution process / mechanism for mediation?	Text	Yes	You may wish to cover this in a consortium agreement, in which case you can just answer "As per the consortium agreement."
4	4	Access, Data Sharing and Reuse	Heading	Yes	There are often conflicting pressures on researchers to share or withhold their data. Early consideration of the issues can help to resolve these conflicts.
4	4.1	Access and Data Sharing	Heading	Yes	
4	4.1.1	Are you under obligation or do you have plans to share all or part of the data you create/capture?	Boolean	Yes	Your funding body may insist on data sharing, and - if you are in the UK - your project may be subject to Freedom of Information (FOI) legislation. (Note that FOI legislation differs in Scotland from England and Wales.) Guidance: - UKCA Guidance on Data Sharing (http://www.data-archives.ac.uk/sharing/data-sharing.aspx)
4	4.1.2	If you answered No to DCC 4.1.1, why will you not share your data?	Text	Yes	You may not plan to share data due to: ethical reasons; non-disclosure agreements; or quality-related issues. (You may also choose to share only part of your dataset(s). (If so, give details here.) Guidance: - DCC Legal Watch Paper on Sharing Medical Data (http://www.dcc.ac.uk/resources/briefing-papers/legal-watch-papers/sharing-medical-data)
4	4.1.3	If you answered Yes to DCC 4.1.1, How will you make the data available?	Text	Yes	Here you will want to explain how the data will be shared e.g. will they be deposited in a data centre, will you forward copies on request to interested parties, etc. Also consider how potential users will find out about your data, e.g. will you publish details of your research, present at conferences, blog about your findings, promote your research outputs on a website? etc.
4	4.1.4	If you answered Yes to DCC 4.1.1, When will you make the data available?	Text	Yes	
4	4.1.5	If you answered Yes to DCC 4.1.1, What is the process for gaining access to the data?	Text	Yes	Ways of accessing data include: downloading from a data centre, requesting direct from the researcher, downloading from a Web page.
4	4.1.6	If you answered Yes to DCC 4.1.1, Will access be chargeable?	Boolean	Yes	

“Overview of funders’ data policies” DCC

<http://www.dcc.ac.uk/resources/policy-and-legal/overview-funders-data-policies>

“Checklist for a DMP” DCC

http://www.dcc.ac.uk/sites/default/files/documents/data-forum/documents/docs/DCC_Checklist_DMP_v3.pdf

2-(1) データマネジメント計画

The screenshot shows the homepage of the DMPTool website. At the top, the logo features three green squares of varying shades to the left of the text "DMPTool" in a large, bold font. Below the logo is the tagline "Guidance and Resources for your Data Management Plan". A navigation bar contains links for "Home", "About DMP Tool", "DMP News", "My Plans", "Funder Requirements", and "Help". In the top right corner, there are links for "Contact Us", "Get Started", and "Login".

The main content area is divided into two columns. The left column features a large image of a scientist in a white lab coat and safety glasses working in a laboratory. Overlaid on this image is a white box with the text: "Create ready-to-use data management plans for specific funding agencies." Below the image, a section titled "The DMP Tool allows you to:" is followed by four numbered icons (1, 2, 3, 4).

The right column has a "Get Started!" button. Below it is a featured example: "Data Management Plan: Sample Plan Created at the DataONE Best Practices Workshop - Santa Fe NM 7/2011. Atmosphere: CO2 Concentrations, Mauna Loa Observatory, Hawaii, 2011-2013". A "See a plan created with the DMP Tool" link is provided. Below this is a "Recent DMP News" section with links to "DMPTool2 Release Schedule Update", "DMPTool2 Feature Highlight: Guidance and Review", and "DMPTool2 Feature Highlight: Co-Ownership & Administration", along with a "More news >" link.

DMPTool. University of California Curation Center of the California Digital Library
<https://dmp.cdlib.org>

2-(2)- データの整備・選択・登録

分野別メタデータ標準の例



2-(2)- データの整備・選択・登録

Social Science & Humanities

Archaeology Building Conservation Health Policy Law Human and Social
Geography Music General **Statistics** Creative art and design Heritage Studies
Anthropology History by Area **Demography** Politics Sociology Planning
(Urban, Rural and Regional) **Economics** Architecture Multi-disciplinary History
Historical and Philosophical Studies **Social Policy**

Metadata Standards

DDI - Data Documentation Initiative

An international standard for describing data from the social, behavioral, and economic sciences. Expressed in XML, the DDI metadata specification supports the entire research data life cycle.

MIDAS-Heritage

A British cultural heritage standard for recording information on buildings, archaeological sites, shipwrecks, parks and gardens, battlefields, areas of interest and artefacts.

OAI-ORE - Open Archives Initiative Object Reuse and Exchange

Defines standards for the description and exchange of aggregations of Web resources.

QuDEX - Qualitative Data Exchange Format

A qualitative data exchange model for the archiving and interchange of data.

SDMX - Statistical Data and Metadata Exchange

A set of common technical and statistical standards and guidelines to be used for the efficient exchange and sharing of statistical data and metadata.

2-(2)- データの整備・選択・登録

The screenshot shows the website for the EDINA and Data Library at the University of Edinburgh. The header includes the university logo and name, a search bar, and a navigation menu with 'Schools & departments'. The main banner features a photo of a library and the text 'Information Services' and 'EDINA and Data Library'. Below the banner is a breadcrumb trail: 'University home > Schools & departments > Information Services > About > Organisation > EDINA and Data Library'. A left sidebar contains links for 'Who we are', 'What we do', 'Data Library projects', and 'News'. The main content area is divided into several sections: 'EDINA and Data Library Division' with a description of their services, 'About EDINA and Data Library Division' with sub-links, 'Quick Links' with direct links to services and the home page, 'News about EDINA and Data Library' with news from both entities, and 'Special Focus - MANTRA online course' with a link to the training course.

THE UNIVERSITY of EDINBURGH

Schools & departments

Q Search

Information Services

EDINA and Data Library

Contact

EDINA and Data Library University home > Schools & departments > Information Services > About > Organisation > EDINA and Data Library

Who we are

What we do

Data Library projects

News

Related links

Your feedback about this page

EDINA and Data Library Division

EDINA provides online services and resources for UK Higher and Further Education. The Data Library assists staff and students in the discovery, access, use and management of datasets for research and teaching. Together they are a division of Information Services.

About EDINA and Data Library Division

- > Who we are
- > What we do
- > Data Library projects

Quick Links

- > Data Library service
- > EDINA home page

News about EDINA and Data Library

- > News from EDINA
- > News from the Data Library

Special Focus - MANTRA online course

- > Research Data Management Training (MANTRA)

3. 研究者のトレーニングと支援



1. ポリシーとサービス実施計画

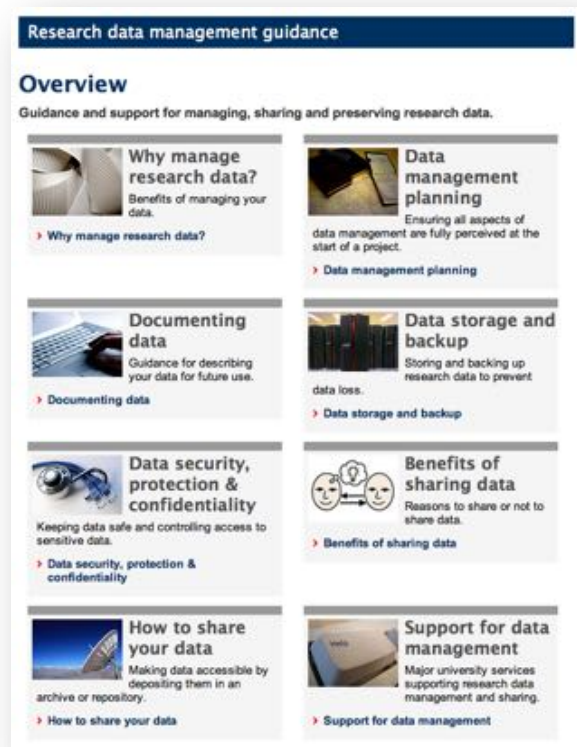
2. データキュレーション

3. 研究者のトレーニングと支援

3. 研究者へのトレーニングと支援

Webサイト

1. 研究データを管理する理由
2. データマネジメント計画
3. データの記録
4. データの保存とバックアップ
5. データセキュリティと保護
6. データ共有の利点
7. データの共有方法
8. データマネジメント支援



3. 研究者へのトレーニングと支援

オンラインコース：MANTRA

MANTRA
Research Data Management Training

MANTRA is an online course designed for researchers or others planning to manage digital data as part of the research process.

Research Student Career Researcher Senior Academic Information Professional

HOME ABOUT ACKNOWLEDGEMENTS DIY TRAINING KIT FOR LIBRARIANS FEEDBACK

LEARNING UNITS

- Research data explained
- File formats & transformation
- Data protection, rights & access
- Data management plans
- Documentation & metadata
- Sharing, preservation & licensing
- Organising data
- Storage & security
- Software practicals

3. 研究者へのトレーニングと支援

オンラインコース：RDMRose



The screenshot displays the RDMRose website interface. At the top, a navigation bar includes links for Home, RDMRose Learning Materials, Index, RDMRose Lite, Links, and Contact us, along with a search box. The main content area features a video player with the title "About RDMRose" and a video titled "RDMRose Project" by Eddy Verbaan. The video shows a man sitting at a desk with a laptop. To the right of the video, there is text describing the project and a feedback form. The RDMRose logo is visible at the bottom right of the page.

Home RDMRose Learning Materials Index RDMRose Lite Links Contact us Search

About RDMRose

RDMRose Project

Eddy Verbaan
RDMRose Project

ABOUT RDMROSE
RDMRose is a JISC funded project to produce taught and continuing professional development (CPD) learning materials in Research Data Management (RDM) tailored for information professionals.

GIVE US FEEDBACK
If you have used any of the RDMRose learning materials, be it for your own use as self-supported CPD or as an educator, we would greatly welcome your feedback. Please fill out this [evaluation form](#). It will help us further enhance the learning materials!

 RDMRose

The JISC funded RDMRose project (Jul 2012-Jun 2013) was a collaboration between the libraries of the University of Leeds, Sheffield and York, with the information School at Sheffield to provide an Open Educational Resource for information professionals on Research Data Management.

3. 研究者へのトレーニングと支援

DCCが実施した研修

- Digital Curation webinar for the Library and Information Association of South Africa (LIASA), April 30 2013, DCC news item with link to slides
- University of the West of England, April 26 2013 (UWE website)
- University of Manchester, Overview of data management planning for research administrators, March 14 2013
- University of Aberystwyth, March 12 2013
- University of Bangor, March 11 2013
- University of Lincoln, February 28 2013
- University of Glasgow, February 27 2013, Introduction to RDM for Information Management and Preservation (IMP) students
- University of Glasgow, February 26, 2013, RDM Landscape overview for academic staff and PhD students
- University of Manchester, February 25, 2013
- University of Glasgow, ArtsLab, February 21 2013
- University of Edinburgh, January 31 2013 Research Data Management Introduction, Data Management Planning, Research Data Management Policy implementation: Plans & Services, Exercises

3. 研究者へのトレーニングと支援

参考：ミネソタ大学の実績（2010-2013年秋）

- サイト訪問数：**47,862**

- ワークショップ：**360**名

- 大学院オンラインコース
（2012年秋, 13年春）

「データマネジメントコース（単位なし）」：**58**名



Johnson, L. "Academic Libraries Get Ready: Big data is here and it needs a (caring) home".
NISO Webinar: Research Data Curation Part 2: E-Science Librarianship. September 18, 2013.
http://www.niso.org/news/events/2013/webinars/data_curation/

職員：エディンバラ大学

 <p>Pel 013</p>	 <p>Ala Hea 0131</p>	 <p>Emir Geo Plan 0131</p>	 <p>Chris 0131</p>	 <p>Dan Dof Cor Unh Dof 013</p>	 <p>Wey Proj Prov wen 0131</p>	 <p>Caro Geo Supp carol 0131</p>
 <p>Rol Edi Ma r.ric 013 Twt Link</p>	 <p>Mal Hea Defi Mar mal 0192</p>	 <p>Hel Help Sup hym 0131</p>	 <p>Nata SUNC Assist natat 0131 Twitte</p>	 <p>Mark Softw Tech mark 0131</p>	 <p>Vivie Traini Plan vivier 0131</p>	 <p>Jack Web Web jacke 0131</p>
 <p>Ing Sen Ma lec 013</p>	 <p>Pau Hea Tect and p.wi Twitt</p>	 <p>Pau Web Dev pau 0131</p>	 <p>Cesa Softw Cont cesar 0131</p>	 <p>Ing Sen Ma Lea 013</p>	 <p>And Dep Lea and 0131</p>	 <p>Paul Help Phon p.cud 0131</p>
 <p>Hel Hex Plan hel 013</p>	 <p>Ch Hex Ma den chr 013</p>	 <p>Rob Dat Mar r.ric 0131 Twitt Link</p>	 <p>Donn Projec Lead donna 0131</p>	 <p>Juli Adr PA juli 013</p>	 <p>Tom Geo Supp tom 0131</p>	
 <p>Co Hex Ma den cor 013</p>	 <p>Stu Asso Prov stud</p>	 <p>Ade Geo Resp use add 0131</p>	 <p>Paul SUNC Assist catal p.cud 0131</p>	 <p>Juli Adr PA juli 013</p>	 <p>Tom Geo Supp tom 0131</p>	

Edinburgh

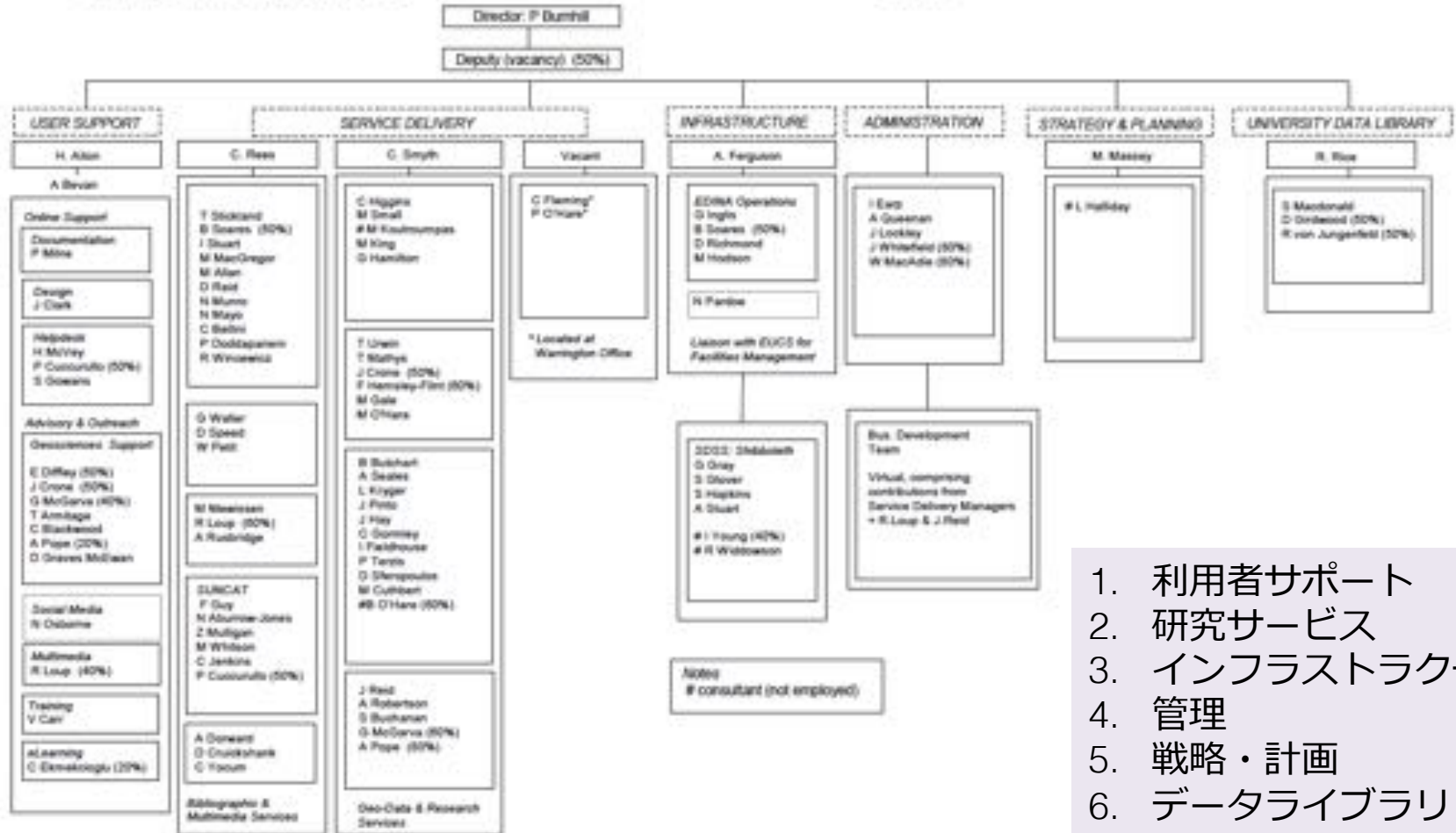
Administr

User Supp

職員：エディンバラ大学

IS Division of EDINA & DATA LIBRARY (EDL)

Mar 2013



1. 利用者サポート
2. 研究サービス
3. インフラストラクチャ
4. 管理
5. 戦略・計画
6. データライブラリ

職員：グラスゴー大学

関連部署と連携してサービスを実施



The screenshot shows a webpage titled "Data management support for researchers" from the University of Glasgow. The page is divided into a left sidebar and a main content area. The sidebar contains a list of navigation links: "Research Data Management at the University of Glasgow", "Creating your data", "Organising your data", "Accessing your data", "Looking after your data", "Training", and "Who can help?". The main content area features a heading "Help and support" followed by the text "Looking for help with research data management? There is a lot of assistance available on campus for:". Below this text are five blue hyperlinks: "Bidding for funding", "Research ethics", "IT support", "Library", and "Data protection and Freedom of Information office".

助成獲得, 研究倫理, ITサポート, 図書館, データ保護と情報公開オフィス

予算や人員に応じたサービス構築

エディンバラ大学

大規模なスタッフ組織

1.6PBのサーバを購入

※巨大データは外部リポジトリへ



Nobel celebrations for Higgs

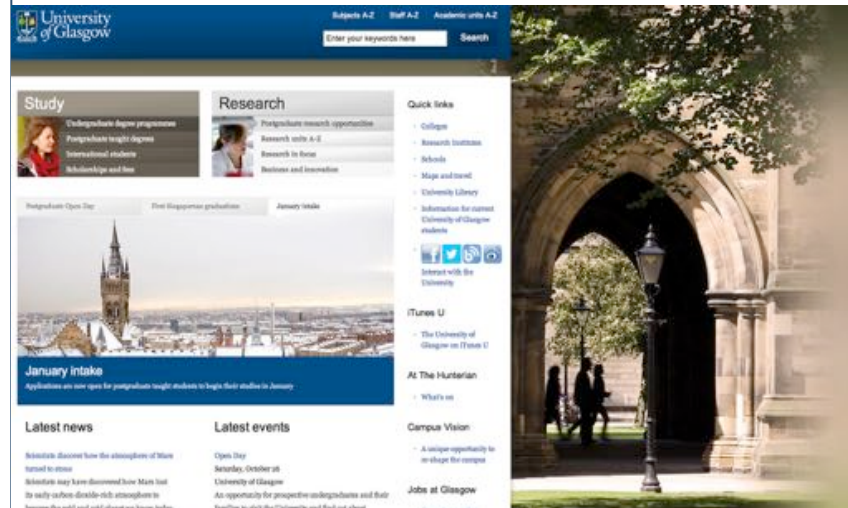
2014/2/20

グラスゴー大学

少人数だが学内・外部機関と連携

外部リポジトリも積極的に活用

※データは10年後に見直し (EPSRC)

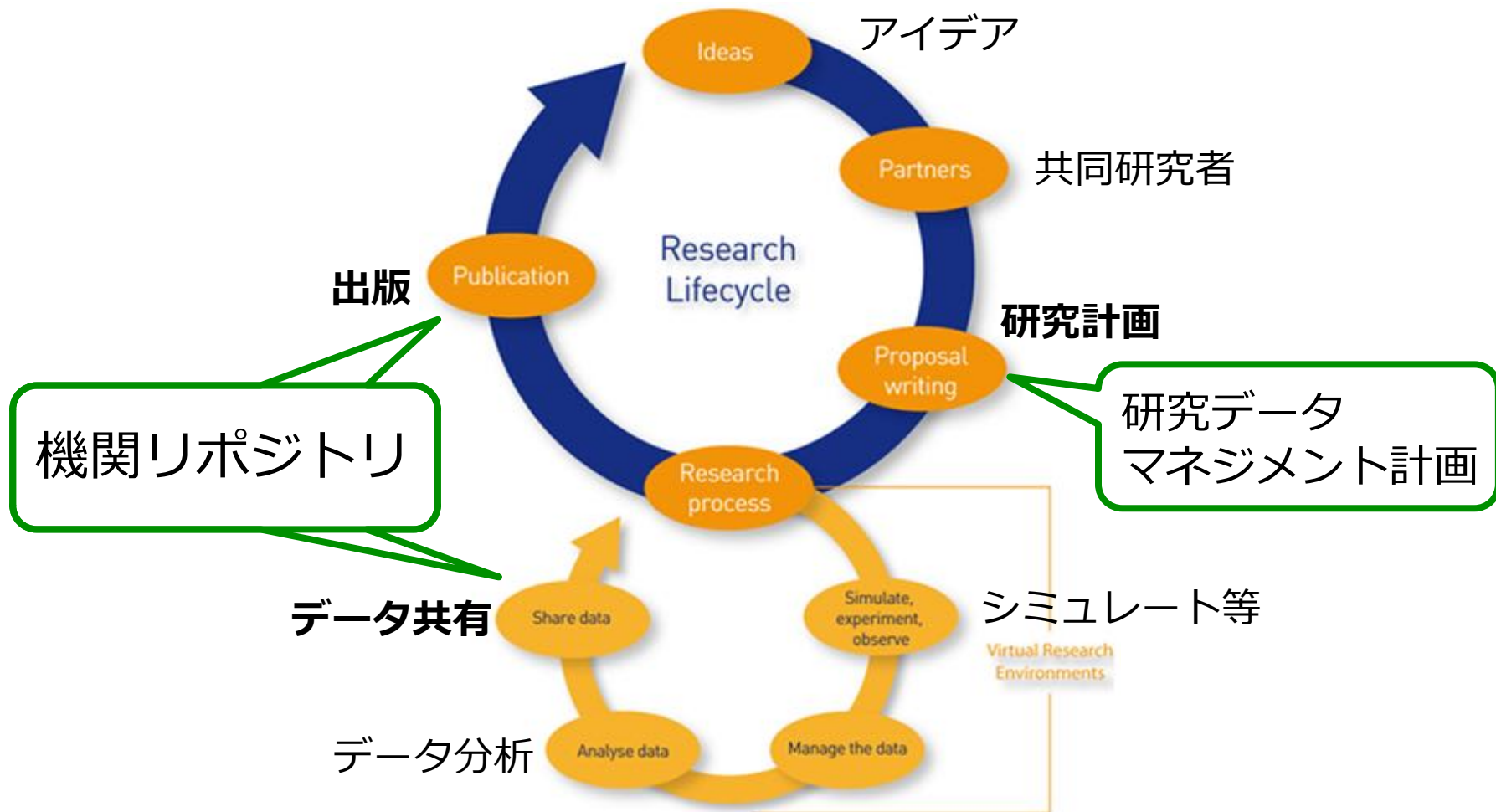


研究データマネジメント



おわりに

研究のライフサイクルと図書館



Joint Information Systems Committee (JISC), Stages of the research and data lifecycle. Figure_1.tif.
in Tenopir, C. et al. Data sharing by scientists: practices and perceptions. PLoS ONE. 2011, 6(6), e21101.

日本の状況



文部科学省
MINISTRY OF EDUCATION,
CULTURE, SPORTS,
SCIENCE AND TECHNOLOGY (MEXT)

文字サイズの変更 小 中 大

Google カスタム検索

ホーム | サイトマップ | English

意見・報道・お知らせ 政策・審議会 白書・統計・出版物 申請・手続き 文部科学省の紹介 教育 科学技術・学術 スポーツ 文化

トップ > 科学技術・学術 > 研究費、研究開発評価 > 研究機関における公的研究費の管理・監査 > 「研究機関における公的研究費の管理・監査のガイドライン（実施基準）」の改正について

「研究機関における公的研究費の管理・監査のガイドライン（実施基準）」の改正について

研究費の不正使用は、不正使用を行った職員と所属民の貴重な税金を原資として成り立つ、科学技術・学

文部科学省では、このことの重要性に鑑み、これまで（実施基準）（平成19年2月15日文部科学大臣決）に対し、公的研究費の管理・監査に係る取組を要請して

しかしながら、依然として公的研究費の不正使用がとから、平成25年8月に設置された「研究における不

中間取りまとめを踏まえ、研究振興局に設置されたガイドラインの改正に係る検討を行ってきました。

このたび、これらの検討結果を踏まえ、ガイドライン後のガイドラインに沿った所要の取組を行うとともに

- 改正の概要 (PDF:165KB)
- 研究機関における公的研究費の管理・監査のガイ



平成25年度国家課題対応型研究開発推進事業
『アカデミッククラウド環境構築に係るシステム研究』提案
「コミュニティで紡ぐ次世代大学ICT環境としてのアカデミッククラウド」
最終報告会
Academic Cloud

研究データマネジメント

博士論文の公開義務化→機関リポジトリ

研究データの公開義務化→研究データマネジメント？

1. ニーズの把握
2. 先行事例の活用
3. 大学内外の部署や機関との連携

Beyond Library, Beyond Librarian



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